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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/820,016	03/29/2001	Gregory Plos	05725.0866-00	5253

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EXAMINER	
ELHILO, EISA B	

ART UNIT	PAPER NUMBER
1751	17

DATE MAILED: 05/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/820,016	PLOS, GREGORY	
	Examiner	Art Unit	
	Eisa B Elhilo	1751	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 May 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-87* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-87* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 01, 2003 has been entered.

Claim Objections

2 Claims 2 and 3 objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The claims recite "2,6-dimethoxy-3,5-diaminopyridine". This compound fails to further limit the subject matter of claim 1 wherein the compound is excluded by the proviso recited in claim 1, wherein when R_2 is chosen from a (C_1-C_4) alkoxy group, then R_3 is a hydrogen atom.

Claim Rejections - 35 USC § 112

3 The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 45-47 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 45 is indefinite because the claim recites the limitations " NADH peroxidases having NADH" and "NADPH peroxidases having NADPH". It is unclear whether these terms

are trade names or scientific names. The specification does not provide any guidance. Clarification is required.

Claims 46 and 47 are indefinite because the claims recite the term "simplex peroxidases". It is unclear what this term means. The specification does not provide any guidance. Clarification is required.

Claim Rejections - 35 USC § 103

4 The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-2, 4-34 and 52-87 are rejected under 35 U.S.C. 103(a) as being unpatentable over De La Mettrie et al. (US' 6,312,477).

De La Mettrie (US'477) teaches a hair dyeing composition comprising oxidation base of 2,3-diamino-6-methoxypyridine (see col. 8, line 7), which is similar to the claimed formula (1), when in the claimed formula R_2 is an amino group, R_3 is hydrogen atom and R_1 is methyl group as claimed in claims 1and 2, from about 0.0005 to 12% of oxidation bases (see col. 10, line 25), other oxidation bases such as para-phenylenediamines of the formula (II), in which R1 is a hydrogen atom or alky radical substituted with a nitrogenous group may be made of amino, mono(C1-C4) alkyamino group as claimed, double base of 1,8-bis(2,5-diaminophenoxy)-3,5-dioxaoctane and para-aminophenol compounds with the formulae similar to claimed formulae (II), (III) and (IV) (see col. 5, lines 36-59, formula II, col. 6, formula III and col. 7, lines 19-20 and formula IV), heterocyclic oxidation bases of pyrazolone, pyrimidine and pyridine derivatives

(see col. 7, lines 64-67 and col. 8, lines 1-67), pyrazolopyrimidiene derivatives (see col. 8, lines 41- 67 and formula V) which are similar to those claimed, from 0.01 to 20% by weight relative to the total weight of the ready to use dye composition of 2-electron oxidoreductase enzymes which overlap with the claimed amount as recited in claims 29-32 (see col. 3, lines 60-64), wherein the 2-electron oxidoreductases represented by glucose oxidases, pyruvate oxidases and pyranose oxidases that derived from uricases of animal, microbiological or biotechnological origin or derived from boar liver and from *Arthrobacter globiformis* as claimed (see col. 3, lines 46-56). The 2-electron oxidoreductase enzymes have similar properties no matter from which origin or source these enzymes are derived or generated. The composition further comprises from 0.01 to 20% of donors (see col. 4, lines 13-17), from about 0.0001 to about 10% by weight of couplers such as 2-methy-5-aminophenol (see col. 10, lines 43-60), direct dyes (see col. 11, line 1), acid addition salts such as sulfates, tartrates and acetates as claimed (see col. 10,lines 61-65), emulsifying agents such as anionic, cationic and nonionic surfactants, conditioning agents, preserving agents and opacifiers (see col. 13, lines 20-34), medium which is suitable for dyeing consists of water and organic solvents such as propylene glycol, ethanol alcohol and benzyl alcohol wherein the organic solvent presents in proportion between 1 and 40% by weight of the total weight of the dyeing composition (see col. 12, lines 36-53), inorganic or organic acids as acidifying agents such as sulfuric acid and citric acid (see col. 12, lines 63-67), basifying agents such as mono-, di-, and triethanolamines and a compound of the formula VI which is similar to that claimed (see col. 13, lines 1-19 and formula VI). The hair dyeing composition having a pH ranging from 5 to 11 (see col. 12, lines 54-60) and the composition can be in various forms such as liquid, creams or gels and the composition is free of oxygen gas as claimed (see col. 13, lines

44-51). De La Mettrie also teaches a method for dyeing hair that comprises the step of applying to the hair the dyeing composition as mentioned above using a multi-compartment dyeing devices or "kit" (see col. 11, lines 7-57).

The reference fails to specifically disclose the combination of an oxidation dye having the recited formula (1) such as 2,3-diamino-6-methoxypyridine with 2-electron oxidoreductase enzyme as claimed.

However, the reference teaches and discloses a dyeing composition comprising at least one enzyme of 2-electron oxidoreductase type as claimed and oxidation bases chosen from para-phenelenediamines, double bases, para-aminophenols, and heterocyclic bases such as 2,3-diamino-6-methoxypyridine (see col. 5, lines 7-17).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make such a dye composition with reasonable expectation of success because the reference clearly teaches that the 2-electron oxidoreductase enzyme can be used in a hair dyeing composition with heterocyclic oxidation bases such as 2,3-diamino-6-methoxypyridine (see col. 5, lines 7-17 and col. 8, line 7), wherein the nature of the oxidation bases used in the dye composition is not a critical factor (see col. 5, lines 13-14), and, thus, a person of the ordinary skill in the art would expect such a dye composition to have similar properties to those claimed, in the absence of contrary.

5 Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over De La Mettrie et al. (US 6,312,477) in view of Moeller et al. (US 6,203,579).

The disclosure of De La Mettrie is summarized above. The reference fails to teach 2,6-dimethoxy-3,5-diaminopyridine as claimed in claim 3. However, the reference teaches and

discloses that pyridine derivatives may be used in a hair dyeing composition (see col. 8, lines 3-9).

Moeller (US' 579) in another analogous art teaches a hair dyeing composition comprising 2,6-dimethoxy-3,5-diaminopyridine as claimed (see col. 13 and col. 14, Tables 3-7).

Therefore, in view of the teaching of the secondary reference, one having ordinary skill in the art would be motivated to modify the dyeing composition of De La Mittrie by incorporating the 2,6-dimethoxy-3,5-diaminopyridine as taught by Moeller. Such modification would be obvious because De La Mettire clearly teaches a dyeing composition that may comprises pyridine derivatives (see col. 8, lines 3-9), and, thus a person of ordinary skill in the art would expect such a composition to have similar properties to those claimed, absent unexpected results.

6 Claims 35-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over De La Mettrie et al. (US' 6,312,477) in view of and Sorensen et al. (WO' 98/40471).

The disclosure of De La Mettrie is summarized above. The reference fails to teach the enzyme of 4-electron oxidoreductase as claimed. However, the reference teaches that other enzymes can be used in the hair dyeing composition (see col. 13, lines 29-31).

Sorensen (WO' 471) in another analogous art teaches a hair dyeing composition comprising 4-electron oxidoreductase enzymes such as laccases, which are obtainable from quite different sources such as plant origin, and laccases of microbial origin including bacteria and fungal laccases such as a *Rhizoctonia practicola* (see page 5, third and forth paragraphs). Sorensen teaches that the concentration of the laccase enzyme depends on its intended application which different from low concentration to high concentration with at least in

concentration from 1 mg enzyme protein per ml product and up to concentration where the viscosity gets high (see page 6, second paragraph).

Therefore, in view of the teaching of the secondary reference, one having ordinary skill in the art would be motivated to modify the dyeing composition of De La Mettire by incorporating the proper amount of laccase enzyme as taught by Sorensen to make such a composition with a reasonable expectation of success. Such modification would be obvious because the primary reference of De La Mettrie clearly teaches and suggests that other enzymes may used in the hair dyeing composition (see col. 13, lines 29-31), and, thus, a person of ordinary skill in the art would expect that the use of the laccase enzymes as taught by Sorenson would be similarly useful and applicable to the analogous composition taught by De La Mettire.

7 Claims 45-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over De La Mettrie et al. (US' 6,312,477) in view of Dias et al. (US' 6,309,426).

The disclosure of De La Mettrie is summarized above. The reference fails to teach the amount and source of the peroxidase enzymes as claimed. However, the reference teaches that other enzymes can be used in the hair dyeing composition such as peroxidases (see col. 13, lines 29-31).

Dias (US' 426) teaches in other analogous art, a hair dyeing composition comprising peroxidase enzymes derived from animal origin such as horseradish peroxidase (see col. 26, line 50). The peroxidase enzymes have similar properties no matter from which origin or source these enzymes are derived or generated. The peroxidase enzymes may be incorporated into the dyeing composition at levels of from 0.0001 to about 5% active enzyme by weight of the dyeing

composition (see col. 26, lines 55-60). This range of the enzyme amount is overlapping with the claimed amounts as recited in claims 47, 50 and 51.

Therefore, in view of the teaching of the secondary reference, one having ordinary skill in the art would have been motivated to modify the reference of De La Mettire by incorporating the peroxidase enzymes as taught by Dias to make such a composition. Such modification would be obvious because the primary reference clearly teaches and suggests the used of peroxidase enzymes in the hair dyeing composition (see col. 13, lines 29-31), and, thus, a person of ordinary skill in the art would expect that the use of peroxidases as taught by Dias would be similarly useful and applicable to the analogous composition taught by De La Mettrie.

Response to Applicant's Arguments

8 Applicant's arguments filed 5/01/2003 have been fully considered but they are rendered moot in view of new ground of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eisa B Elhilo whose telephone number is (703) 305-0217. The examiner can normally be reached on M - F (7:30-5:00) with alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra Gupta can be reached on (703) 308-4708. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

May 27, 2003

Eisa Elhilo
Patent Examiner
Art Unit 1751